SOUTH CAROLINA GOVERNOR'S SCHOOL
for Science & Mathematics

2020-2021 Course Catalog

(*for Class of 2021*)

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Academic Requirements

GSSM awards both State of South Carolina and GSSM diplomas. While at GSSM, all students must be working toward earning a State of South Carolina diploma and a GSSM diploma. Students must complete at GSSM a minimum of 5 courses each semester, a January Interim course each year, and the Research and Inquiry Program summer component between Junior and Senior years. Some students may need to take more than the minimum credits to meet state and/or GSSM graduation requirements. With advisor's approval, a student may take more than the minimum.

The table below outlines the minimum number of credits that must be completed for a GSSM diploma and State of South Carolina diploma. Except for the January Interim Requirement, course credits may be completed before enrolling or while at GSSM.

Credits are defined as the following: 0.5 credits for a semester course and 1.0 credits for a year-long course or a two-semester courses class. If one high school unit is awarded for a semester-long dual enrolled course, GSSM reserves the right to review the curriculum to deem if the material covered meets the GSSM 1.0 credit (i.e. year-long or two-semester course) requirement listed below.

	Credits
Science with a Lab *(must include 1.0 credit biology, chemistry, and physics)*	3.0
Mathematics *(must include 1.0 credit of calculus)*	4.0 – 5.0
Computer Science	1.0
English/Language Arts	4.0
Foreign Language *(in the same language)*	2.0
US History	1.0
US Government	0.5
Economics	0.5
Other Social Studies	1.0
Physical Education/ROTC	1.0
Fine Arts	1.0
GSSM January Interim Courses	1.0
Electives	3.0 - 4.0
Total	**24**

Additional Graduation Requirements

Research and Inquiry Program Completion of a GSSM-approved, six-week mentored research and inquiry program is required for all students. This program typically involves six weeks of summer research and a fall semester course that culminates with presentations at Colloquium and SCJAS.	Required for all students to pass.
Junior Seminar Series (one hour per week per seminar) Fall: *Life and Leisure* and *Academic Transition Seminars* Spring: *College Planning Seminar* I and a three-part seminar series	Required for all Juniors to attend and pass.
Senior Seminar Series (one hour per week per seminar) Fall: *College Planning Seminar II*	Required for all Seniors to attend and pass.
Community Engagement	All students must participate based on outlined expectations

Academic Concentrations

GSSM offers students the opportunity to concentrate study in one of several disciplines. In this manner, students may pursue academic areas of particular interest to them. They may bring their pursuit of academics above and beyond Advanced Placement to the attention of colleges and other interested parties. Students are cautioned that in most cases, they will have to have completed some advanced coursework prior to entry to GSSM for a concentration to be feasible. Concentrations are recognized during the Academic Awards Program at the end of the spring semester. A student should never pursue a Concentration as a mark of academic excellence; breadth in academic pursuits is fully as desirable as depth, especially for students just beginning their academic careers.

1. **Biology**
   The incoming student with no Advanced Placement score will need to earn a grade of B or above in Biology 201 and 202 plus at least two other biology courses at the 300 level.
   The incoming student with an Advanced Placement score of 5 who skips Biology 201 and 202 will need to earn a grade of B or above in at least three courses at the 300 level.

2. **Physics**
   The student must take a two course sequence from PHY151-152-AP or 201-202-AP and at least two of the following electives: Fluids, Thermodynamics and Optics (PHY203-H), Computational Physics (PHY204-H), Physics in the Arts ([General Science] INDS-2), and Modern Physics (PHY301-H). If Physics graduation credit was earned prior to enrollment at SCGSSM, then at least three of the listed Physics electives must be completed.

3. **Chemistry**
   The student will complete the following chemistry courses while at GSSM: the advanced Chemistry sequence (Chemistry 201 and 202) and at least one of the following: Chemistry 150 (Molecular Spectroscopy), Chemistry 300 (Introduction to Organic and Biochemistry), Chemistry 304 (Analytical Chemistry), or Chemistry 306 (Computational Chemistry).

4. **Mathematics**
   The student must make a B or above in any two of the following selection of courses: Mathematics courses – linear algebra, differential equations, discrete structures, multivariable calculus, number theory, abstract algebra.

5. **Computer Science**
   The student must make a B or above in any **two** of the following selection of courses: Computer science courses – data structures, programming interaction and visual design (processing language), game design, database design, artificial intelligence, C++ language applications

6. **Economics and Finance**
   The student must earn a B or above in at least three the following courses: Technology Ventures, Quantitative Financial Analysis, International Economics, AP Microeconomics, and AP Macroeconomics.

7. **Humanities**
   The student will complete four term electives, distributed among or concentrated in the English, Foreign Languages, or History Department. Electives may be chosen only after required courses in the department have been completed.

GSSM Course Offerings by Semester

American Sign Language (ASL)

Fall	Spring
101 Introduction to American Sign Language I: year-long	
201 Introduction to American Sign Language I: year-long	

Biology (BIO)

Fall	Spring
202 AP Biology	201 AP Biology
303 Molecular Biology (above AP)	305 Introduction to Microbiology (above AP)
304 Human Anatomy and Physiology (above AP)	306 Neuroscience (above AP)
309 Biological Evolution (above AP)	307 Advanced Genetics (above AP)
	308 Botany (above AP)

Chemistry (CHE)

Fall	Spring
100 Principles of Chemistry: year-long	
201 AP Chemistry	202 AP Chemistry
300 Introduction to Organic and Biochemistry (above AP)	150 Molecular Spectroscopy
304 Analytical Chemistry (above AP)	300 Introduction to Organic and Biochemistry
	306 Computational Chemistry (above AP)
	308 Introduction to Inorganic Chemistry (above AP)

Chinese (CHI)

Fall	Spring
101 Introduction to Chinese I	102 Introduction to Chinese II (dual credit)
201 Intermediate Chinese III	202 Intermediate Chinese IV (dual credit)

Computer Science (CSC)

Fall	Spring
101 Introduction to Computer Science (AP CS A)	102 Advanced Computer Programming (AP CS A)
110 Computer Science I: Python for Scientist (dual credit)	110 Computer Science I: Python for Scientist (dual credit)
111 Computer Science II: C++ Applications (dual credit)	130 Data Structures and Algorithms (above AP)
120 Interactive Visual Programming using Processing (above AP)	140 Introduction of Artificial Intelligence (above AP)
130 Data Structures and Algorithms (above AP)	160 Introduction to Computer Networking (above AP)
170 Introduction to Database Design (above AP) (odd years only)	202 Game Design, Prototyping and Production (above AP)

Engineering (ENGIN)

Fall	Spring
102 Engineering Disciplines and Skills (dual credit)	102 Engineering Disciplines and Skills (dual credit)
141 Computer Programming 1 with MATLAB (dual credit)	141 Computer Programming 1 with MATLAB (dual credit)
205 Applications of Engineering Design	206 Engineering Mechanics: Statics
212 Mechanical and Aerospace Engineering[1] (virtual course)	207 Engineering: Electronics
CSC402 Robotics (*Please use CSC, not ENGIN*)	208 Engineering Design and Modeling (dual credit)
	209 Biomedical Engineering[1] (virtual course)
	212 Mechanical and Aerospace Engineering[1] (virtual course)

1. ENGIN 209 and 212 are taught online with periodic live instruction via the GSSM Accelerate Program.

English (ENG)

Fall	Spring
102 Jr English (AP English Language): year-long	
201 Sr English (AP English Literature): year-long	
303 Studies in Dramatic Literature	304 Introduction to Film (odd year)
306 African American Literature	305 Studies in Creative Writing: Fiction
307 Studies in Creative Writing: Nonfiction	308 Introduction to Philosophy
312 Shakespeare's Plays	309 Topics in Science Fiction: Literature (even year)
	310 Gender Studies

French (FRE)

Fall	Spring
101 French I: year-long	
201 French II: year-long	
301 French III: year-long	
401 French IV: year-long	
601 AP French: year-long	

General Science (SCI)

Fall	Spring
INDS-1 Physics in the Arts	PHY 210 Astronomy
INDS-2 Your Cosmic Context	
SCI 301 AP Environmental Science	

German (GER)

Fall	Spring
200 German II: year-long	
300 German III: year-long	

Government, Economics and Finance (HIS & EFI)

Fall	Spring
HIS 201 Government/Economics[1] *also available summer (mid-June to end of July) and interim*	HIS 201 Government/Economics[1] *also available summer (mid-June to end of July) and interim*
HIS 202 AP US Government	HIS 203 AP Comparative Governments
EFI 310 Principles of Economics: Microeconomics[2] (dual credit) (virtual course)	EFI 320 Principles of Economics: Macroeconomics[2] (dual credit) (virtual course)
EFI 301 Technology Ventures	EFI 303 Quantitative Financial Analysis (odd years only)
	EFI 330 International Economics (even years only)

1. HIS 201 may be taught on-campus or online during the fall and spring semesters.
2. EFI 310 and 320 are taught online with periodic live instruction.

History (HIS)

Fall	Spring
101 AP US History	
303 Native American Studies (odd years only)	304 Colonial America (even years only)
306 Ethics, Beauty, and the Environment (even years only)	309 Civil War and Reconstruction (odd years only)

Mathematics (MAT)

Fall	Spring
101 Essentials for Calculus: year-long	
102 Foundations 1 for Calculus	103 Foundations 2 for Calculus
111 Concepts 1 for Calculus	112 Concepts 2 for Calculus
200 Honors Calculus: year-long	
201 AP Calculus AB	202 AP Calculus AB
203 AP Calculus BC: year-long	
303 AP Calculus BC	302 Abstract Algebra (above AP) (odd years only)
301 Linear Algebra (above AP) (even years only)	306 Multivariable Calculus (above AP) (even years only)
304 AP Statistics: Probability and Statistics	305 AP Statistics: Applied Statistics
307 Discrete Structures (above AP) (odd years only)	310 Number Theory (above AP) (even years only)
	312 Ordinary Differential Equations (above AP) (odd years only)

Music (MUS)

Fall	Spring
110 Chamber Orchestra	110 Chamber Orchestra
111 Advanced Chamber Orchestra	111 Advanced Chamber Orchestra
120 Concert Choir	120 Concert Choir
121 Advanced Concert Choir	121 Advanced Concert Choir
201 AP Music Theory: year-long	

Physics (PHY)

Fall	Spring
151 AP Physics 1 – A	152 AP Physics 1 – B
201 AP Physics C:M	202 AP Physics C:EM
204 Computational Physics	203 Fluids, Thermo and Optics
301 Modern Physics (above AP)	

Psychology (PSY)

Fall	Spring
	301 AP Psychology

Research & Inquiry (RES)

Fall	Spring
401 Mentored Summer Research (above AP) (includes summer)	
402 Scientific Investigation I	402 Scientific Investigation I
403 Scientific Investigation II	403 Scientific Investigation II
404 Scientific Investigation III	404 Scientific Investigation III

Spanish (SPA)

Fall	Spring
201 Spanish II: year-long	
301 Spanish III: year-long	
401 Spanish IV: year-long	
601 AP Spanish: year-long	
	703 Topics in Hispanic Culture and Linguistics (above AP)

Virtual Electives (ENGIN)

Fall	Spring
ENGIN 212 Mechanical and Aerospace Engineering	ENGIN 209 Biomedical Engineering
	ENGIN 212 Mechanical and Aerospace Engineering

Visual Arts (ART)

Fall	Spring
ART 110 Introduction to Ceramics	ART 110 Introduction to Ceramics
ART 111 Advanced Ceramics	ART 111 Advanced Ceramics
ART 120 2D Art Exploration	ART 120 2D Art Exploration
ART 121 Advanced 2D Art Exploration	ART 121 Advanced 2D Art Exploration

Students are automatically registered for the following seminars

Junior Seminar Series (LLS)

Fall	Spring
101 Life and Leisure Skills	103 College Planning Seminar I
102 Academic Transition	105 Everyday Survival Skills
	106 Public Speaking
	107 Preparing for Research Experiences

Senior Seminar Series (LLS)

Fall	Spring
104 College Planning Seminar II	

Frequently Asked Questions

1. How many courses do I need each semester?

All students must have a minimum of 5 courses per semester. Many students take 6 courses per semester, and some take 7 or more. Juniors also take two one-hour seminar courses per semester, and seniors also take a one-hour seminar course during the fall semester. Students should work with their academic advisors to come up with the schedule that best meets their academic goals and abilities.

2. What if I want to take more than 5 courses in a semester?

Students may take a sixth course during a semester with approval of their advisor. Students may take a seventh course with the approval of their advisor and the Senior Vice-President for Residential. In general, only consider requesting more than 5 courses if you are earning 90s or above in all current courses. When considering taking more courses, it is important to consider the demands of an additional course. It is very important for college admissions that you perform well in the courses you take. Taking more courses and not performing well in all courses is not advisable.

3. What science courses do I need?

It is important that you have a solid foundation in the core sciences: biology, chemistry and physics. Therefore, you must take a full credit (one year) in each of these three sciences. You need at least three lab sciences during high school to graduate with a SC diploma and a GSSM diploma. Discuss with your advisor possibly taking GSSM's foundational lab sciences in order to ensure a strong background in all three sciences.

4. Which chemistry course should I take, Principles of Chemistry or AP Chemistry?

You can take either Principles of Chemistry or AP Chemistry as a junior or senior. If you have taken a chemistry course and have a strong background in the subject, you should take AP Chemistry. If you have taken a chemistry course, but do not have a strong background, you will be more successful in Principles of Chemistry. If you have never taken a high school chemistry course, you must take Principles of Chemistry. Students who take Principles of Chemistry as a junior will be well prepared to take AP Chemistry as a senior if they choose to do so.

5. Which physics course should I take, AP Physics I or AP Physics C?

You can take either AP Physics I or AP Physics C, based on your math placement. Taking AP Physics I as a junior does not preclude you from also taking AP Physics C as a senior. Because physics has a heavy math component, to register for AP Physics I you must be in MAT111-H or above, and to register for AP Physics C, you must be in MAT201-AP or above. You can enroll in either p physics course without a prior course in physics as long as you meet the math requirement.

6. Which math course should I take?

As is the case for all GSSM courses, the courses in mathematics are designed to teach mastery of the subject area. Based on our professional opinion and experience, our goal for students is to place them into the course best suited for each of their individual backgrounds. We want each student in the course that will challenge that student at an appropriate level.

Recognizing that the mathematical ability of students varies greatly despite possibly having taken similar courses, we take proper placement very seriously. Due to the conceptual nature of mathematics, it is possible that once a student is at GSSM he or she could and should be placed in a different level (higher or lower) class. We encourage students to challenge themselves and strive to reach their full potential in all academic areas, and therefore, we will switch a student to a different mathematics class if we see that our initial placement was incorrect. The math department will reassess placements near the beginning of the semester, after the first major assessment, and once again at the mid-term.

For Rising Juniors

During the registration process, all rising juniors are asked to select the math courses, along with their other courses, that they want to take. During New Student Orientation Day, all rising juniors are given placement assessments, which are used in addition to their placement request, transcripts, PSAT/SAT math scores and previous grades in mathematics, to place them in the proper math courses.

For Rising Seniors

Math placement is determined by you and your current math instructor. After spring midterm grades are reported, you will meet with your math instructor to decide which math course is appropriate for you. Final semester grades will determine your ultimate placement. Placement is determined by the general guidelines below:

All GSSM students must complete 1.0 credit of calculus during high school. Students who took MATH 101, Math 102/103 or Math 111/112 as juniors will be placed into a calculus class as follows:

- For students currently enrolled in Math 101, a grade of 90 is needed for MAT 201 (Calculus AB) and permission of the instructor is needed for MAT 203 (Calculus BC)
- For students currently enrolled in MAT 102/103, a grade of 86 is needed for MAT 201 (Calculus AB) and 93 for MAT 203 (Calculus BC).
- For students currently enrolled in MAT 111/112, a grade of 80 is needed for MAT 201 (Calculus AB) and 90 for MAT 203 (Calculus BC).

7. Which computer science course should I take?

GSSM considers computer science to be an indispensable tool for almost every discipline. If you have not taken a computer science course, you may select one of these options to fulfill the SC graduation requirement:

- CSC101 Introduction to Computer Science (AP CS A) which is a one-semester course offered in the fall, followed by CSC102 Advanced Java Programming (AP CS A) which is offered in the spring to complete your AP exam preparation. Each semester earns 0.5 unit.
- CSC110 Computer Science 1: Python for Scientists which is a general-purpose object-oriented language that is used by many disciplines. This one semester course earns 1.0 unit. This course is dual-enrolled.
- The sequence ENGIN102 Engineering Disciplines and Skills followed by ENGIN141 Computer Programming with MATLAB. MATLAB is a programming language tailored for engineering and science. Refer to the description in the engineering section of the course catalog. NOTE: Only ENGIN141 is dual-enrolled and counts as 1.0 unit of credit of computer science.
- CSC101 Introduction to Computer Science (AP CS A) (0.5 unit) followed by CSC160 Introduction to Computer Networking (0.5 unit) for a total of 1.0 unit of credit.

If you have taken a computer science course that qualifies under the SC graduation requirements, you may enroll in any of the computer science courses for which you have completed the prerequisites.

8. Which engineering course should I take?

The engineering program at GSSM offers introductory and advanced project-based courses. ENGIN205 Applications in Engineering Design is a good place to start if you have limited experience in engineering. For more advanced studies, consider ENGIN207 Engineering: Electronics, or ENGIN115 Engineering: Design Modeling course. We offer three dual-enrolled courses, ENGIN102 Engineering Disciplines and Skills, ENGIN141Computer Programming with MATLAB, and ENGIN115 Engineering Design Modeling course.

ENGIN102 and ENGIN141 are the equivalent to the General Engineering sequence at Clemson University, in which students learn how to apply Excel (in ENGIN102) and MATLAB (in ENGIN141) to analyze and solve engineering and science problems. ENGIN115, in which students learn how to 3D model in SolidWorks, is also required by some engineering departments at Clemson. Students choosing to attend Clemson may receive university credit for these courses.

9. What is an independent study and how do I register for one?

Independent study is designed to provide additional opportunities for highly motivated students to pursue areas of their special interest. Independent study courses are student-initiated and allow students to explore areas of interest beyond what is offered in the catalog. They enhance the quality of our academic program by adding customized courses in areas of interest of students and expertise of instructors beyond what is already offered. Independent study course proposals will only be considered for 0.5 units (equivalent time commitment required as a regular semester-long course) and as courses beyond the five course minimum per semester. In some rare cases, independent study courses could be considered for 1.0 unit. Independent study courses must be approved by the Curriculum Committee.

Students wishing to enroll in an independent study course must meet at least one of these criteria:

a) A student wishes to extend knowledge in a discipline where all relevant existing courses have been completed with a grade of 90 or above or at the permission of the instructor and approval of the Curriculum Committee. The Curriculum Committee reserves the right to determine if all relevant courses have been taken in an area of study in order to warrant an independent study course. In some cases, it will be advised that a student take an existing course instead of an independent study.

b) A student needs to complete a requirement for graduation (normally only in the spring semester of the senior year) when there is no course available in the specific subject that the student may schedule or an unavoidable scheduling conflict exists, provided that the independent study is not being used to replace a failed regular class. In special circumstances, the instructor and student may request an exemption from the Curriculum Committee.

10. If there is more than one teacher for a course, can I select the teacher I want?

Students do not have the ability to select instructors. It is important to learn how to learn in all situations and from all different teaching styles. Learning from our diverse and talented instructors will prepare you for learning in the college setting and beyond.

11. Why does my schedule change sometimes during the year, especially between semesters?

In order to provide the best educational experience, we try to balance classes as best possible (i.e. similar number of students in each section of a course). Since a number of our courses are taught in one semester and since we allow students to add and drop courses at the beginning of semesters, there is sometimes a need to rebalance classes for instructors at the beginning of each semester and sometimes after a few weeks into a semester.

12. How does research count in regards to the classes I take?

Mentored Summer Research (RES401) counts as one of your required 5 courses in the fall of your senior year. The final grade and credit for research is not awarded until the end of the spring semester. RES401 does not count as one of your classes during the spring semester, but will show up on your spring schedule. You will receive one full high-school credit for completion of RES401. Students may also apply to participate in on-campus research during the fall and spring semesters (RES402, RES403, and RES404).

13. What do I need to do if I have not met the Physical Education state graduation requirement prior to coming to GSSM?

The combination of your Life and Leisure seminar and working with the athletic department on a physical activity plan will suffice for the state PE requirement.

14. What do I do if I need a fine arts credit?

You can take GSSM visual arts, music, or drama at GSSM in either semester. If these possibilities do not fit into your academic program during your two years at GSSM, you can request from the Senior Vice President for Residential to take fine-arts courses during the summer.

15. If a course is listed in the course catalog, will it definitely be offered?

Ideally, yes. However, depending on student demand for the course, and faculty load (what other courses faculty are teaching), some courses may not be able to be offered each year. Also, some courses might have to be limited to a certain number of students, and therefore in some cases, not all students who register for a course will be able to take the course. Therefore, when signing up for courses, you should think about other elective courses you might want to take if your initial choices cannot be met.

16. If I take the one semester Gov/Econ (HIS 201) class at GSSM, how does that impact the state requirements?

If you take the one-semester Gov/Econ course at GSSM, then it satisfies both the government and economics state requirements, reducing the total state social studies requirements from 3 credits (US History – 1.0 credit, Government – 0.5 credit, Economics – 0.5 credit and one other Social Studies credit – 1.0 credit) to 2.5 credits total (US History – 1.0 credit, GSSM Gov/Econ – 0.5 credit and one other Social Studies credit – 1.0 credit). GSSM's one-semester Gov/Econ course may be offered on-campus or online during the fall and spring semesters, depending on instructor availability. It is offered online during the interim term for students taking on-campus courses. It is offered online during the summer for rising seniors.

17. Do students and parents have access to grades through PowerSchool like they did in their previous high school?

GSSM is a high school that operates in many academic ways like a college. Classes are on a college schedule, mastery of the subject is the goal, and student ownership of their academic success is promoted. Therefore, we ask that students maintain a record of their grades throughout their courses. At any point during a course, a student or parent can ask a teacher about their grade, but ideally, the student would know their grades based on the grades they have received and the grade breakdown provided in the course syllabus. We realize, however, that we are not a college; therefore, mid-semester report cards and end of semester report cards are given to the students and sent home.

Course Descriptions

American Sign Language

ASL101-H **Introduction to American Sign Language I** (A Full Year – 1.0 unit)
ASL I is an introductory language course intended for students with little or no knowledge of American Sign Language. American Sign Language (ASL) is the language used by the Deaf Community in the United States and parts of Canada. This course uses a communicative methodology in an effort to promote the five 'Cs' of second language acquisition: Communication, Cultures, Connections, Comparisons and Communities. By the end of the academic year, students should have a greater understanding of cultural and historical topics associated with Deaf Culture and American Sign Language. Students should expect to discuss basic topics and cultural events in the present, past, and future; describe people and places; and talk about daily activities. The course includes projects and presentations on Deaf Culture in America; role play, interactions with the Deaf Community and field trips to the South Carolina School for the Deaf and Blind.

ASL201-H **Introduction to American Sign Language II** (A Full Year – 1.0 unit)
ASL II is an interactive, proficiency-oriented and student centered course that builds on the language proficiency and cultural knowledge/awareness acquired in American Sign Language I. This course uses a communicative methodology in an effort to promote the five 'Cs' of second language acquisition: Communication, Cultures, Connections, Comparisons and Communities. By the end of the academic year, students should have a greater understanding of cultural and historical topics associated with Deaf Culture and American Sign Language. Students should expect to discuss topics and cultural events in the present, past, and future; describe people and places; and talk about daily activities. The course includes projects and presentations on Deaf Culture in America; role play, interactions with the deaf community and field trips to the South Carolina School for the Deaf and Blind. *PREREQ: ASL I or permission of instructor.*

Biology

BIO201-AP (AP Bio) **Principles of Biology I (AP BIO)** (SPRING Semester – 0.5 unit)
This course covers selected topics that are fundamental to an understanding of biology. Important concepts that may have been introduced in other courses will be covered in depth and expanded with laboratory experiences and discussions of relevant research. Units covered in this course will include discussions of inheritance, evolution and mechanisms of selection, speciation, origin of life, diversity of life, animal behavior, ecology, and energy production in plants and animals. *Includes a 2-3 hour weekly lab. See College Credit Hours Agreements at end of the course descriptions.*

BIO202-AP (AP Bio) **Principles of Biology II (AP BIO)** (FALL Semester – 0.5 unit)
This course will examine selected topics that are fundamental to an understanding of biology. Important concepts that may have been introduced in an introductory course will be covered in depth and expanded upon with laboratory and discussions of current research findings in these areas. Units covered in this semester will include discussions of basic biochemistry, cell structure and function, mitosis, meiosis, DNA replication, transcription, translation, regulation of gene expression, and current molecular biology techniques. *Includes a 2-3 hour weekly lab.* See *College Credit Hours Agreements at end of the course descriptions.*

BIO303-H (above AP) **Molecular Biology of the Cell** (FALL Semester – 0.5 units)
The purpose of this course is to acquaint the student with selected topics in the molecular biology of cells with a focus on eukaryotes. The course format is a combination of lectures and discussions of current research articles with student participation as an important element. Laboratory work will emphasize important concepts and techniques used in the study of cellular components and will involve extensive hands-on manipulations. In-class tests and out-of-class problem sets will require an understanding of experimental design and interpretation of data. *Includes a 2-3 hour weekly lab. PREREQ: BIO201-AP and BIO202-AP or completion of AP Biology. See College Credit Hours Agreements at end of the course descriptions.*

BIO304-H (above AP) **Human Anatomy and Physiology (**FALL Semester – 0.5 unit)
Students will investigate the functional anatomy and control mechanisms affiliated with the various organs of the human body. Cell structure and tissue specificity will be integrated with the function of these cells in their respective organ systems. Laboratory work will involve experiments designed by and performed on the students. There will be an emphasis on exercise physiology and clinical abnormalities and their effects on whole body homeostasis. The course work includes various case studies to help students understand the application of topics covered in class. New techniques involved in medicine will be studied using web-based curriculum *Includes a 2-3*

hour weekly lab. PREREQ: BIO202-AP with concurrent enrollment in BIO201-AP or completion of AP Biology. See College Credit Hours Agreements at end of course descriptions.

BIO305-H (above AP) **Principles of Microbiology (SPRING semester – 0.5 unit)** The objective of this course is to introduce the students to the microscopic world of bacteria, algae, fungi, protozoa, and virus and their role in diseases as well as the concept of pathogenesis and host immune defense mechanisms. This course will also include microbial cellular structures, metabolic pathways, regulatory signals, and genetic exchange mechanism, In addition, evolutionary processes that led to antibiotic resistance, xenobiotic degradation and the co-evolution of hosts and parasites will also be studied. Finally, a brief look at the importance of bacteria in soil, water, food and the industrial waste will also be studied. This course will include a two hour lab/week and a group project to isolate microorganisms with unique characteristics from natural environment. *Includes a 2-3 hour weekly lab. PREREQ: BIO202-AP with concurrent enrollment in BIO201-AP or completion of AP Biology.*

BIO306-H (above AP) **Introduction to Neuroscience (**SPRING Semester – 0.5 unit)
This course serves as an introduction to the basics of nervous system functions and dysfunctions. This class is open only to students with an A or high B in AP Biology. The course begins with the cellular and molecular biology of neurons and glial cells, including the study of neuronal cell structure, the propagation of nerve impulses and transfer of information between nerve cells (action potentials and synaptic transmission). The course then follows the effect of drugs on this process and the development of nerve cells into the brain and spinal cord as well as how the brain receives and processes sensory information and how it acts on that information through various motor and sensory systems. Other topics covered included how behavior, emotion and memory emerge from brain function. Teaching methods included lectures, discussions, case studies and talks by renowned neuroscientists. This course will also include hands-on as well as virtual labs. *Includes a 2-3 hour weekly lab. PREREQ: BIO202-AP with concurrent enrollment in BIO201-AP or completion of AP Biology.*

BIO307-H (above AP) **Advanced Genetics** (SPRING Semester– 0.5 unit)
This course builds on the basic understanding of DNA and genetics introduced in BIO 201 and BIO 202. Through class discussion, journal articles, homework problems, and lab experiments students will improve their understanding of inheritance and genomics. Topics to be discussed include patterns of inheritance, eukaryotic chromosomal mapping, gene expression, epigenetic inheritance, mutation and repair, and quantitative genetics. This is a lab course. Includes a 2-3 hour weekly lab. PREREQ: completion of AP Biology or completion of BIO 201-AP.

BIO308-H (above AP) **Botany** (SPRING Semester – 0.5 unit)
This course introduces students to the basics of Botany, including what characterizes a plant and how to identify plants in our local communities. Topics discussed will include plant diversity, structure, physiology, evolution, and ecology. Laboratory work will emphasize plant structure, function, and field identification. Optional field trips to different plant communities will be taken and attendance is encouraged. *Includes a 2-3 hour weekly lab. PREREQ: completion of AP Biology or completion of BIO202-AP and concurrent enrollment in BIO201-AP.*

BIO309-H (above AP) **Biological Evolution** (FALL Semester– 0.5 unit)
This course will explore the evolutionary process in detail and its place as the cornerstone of modern biology. Laboratory experiences and directed readings will allow the student to make connections with the other biological sciences. Topics include the evidence for evolution, the mechanisms of evolutionary change, the measurement of evolutionary change, speciation, and the analysis of phylogeny. *Includes a 2-3 hour weekly lab. PREREQ: BIO201-AP or completion of BIO202-AP and completion of AP Biology.*

Chemistry

CHE100-H **Principles of Chemistry** (A Full Year Course – 1.0 unit)
This course will examine selected topics that are fundamental to an understanding of chemistry. Students will investigate the electronic structure of atoms, chemical bonding, chemical formulas, mass/volume relationships in chemical reactions, gas laws, energy changes in chemical reactions, molecular geometry, acid/base/salt reactions, colligative properties, an introduction to organic chemistry and other selected subjects. Hands-on laboratory work will reinforce concepts as well as develop skills in using standard laboratory equipment. *Includes a 2-3 hour weekly lab.*

CHE150-H **Molecular Spectroscopy** (SPRING Semester – 0.5 unit)
This course will act as an overview of molecular spectroscopy, with a particular emphasis on the microwave region of the spectrum. Molecular spectroscopy is the use of electromagnetic radiation to study the structure and motion of molecules. It is impossible to “see” individual molecules, but an immense amount of information can be learned by studying the frequencies and intensities that they absorb and emit. After an overview of quantum mechanics and ultraviolet, visible, infrared, and nuclear magnetic resonance spectroscopy, students will undertake a laboratory-based research project in the area of microwave spectroscopy. They will use GSSM’s custom-built chirped-pulse microwave spectrometer to design, implement, and analyze their individualized research project. *Includes a 2-3 hour weekly lab. PREREQ: GSSM CHE100-H or CHE201-AP or permission of instructor.*

CHE201-AP (AP Chem) **Advanced Chemistry I (AP Chem)** (FALL Semester – 0.5 unit)
This course will explore topics in greater depth: quantum mechanics, chemical bonding, molecular geometry, kinetics and chemical equilibrium. Laboratory experiences will include traditional wet lab methods, microscale, and the use of modern electronic instrumentation. *Includes a 2-3 hour weekly lab. PREREQ*: *One unit in Chemistry. Enrollment is also based on math assessment or with permission of instructor. See College Credit Hours Agreements at end of the course descriptions.*

CHE202-AP (AP Chem) **Advanced Chemistry II (AP Chem)** (SPRING Semester – 0.5 unit)
A continuation of Chemistry 201-AP, this course is necessary for a student to take the Advanced Placement Chemistry Test. This course will explore in more depth the topical areas of acid-based chemistry, thermodynamics, oxidation-reduction reactions, and electrochemistry. *Includes a 2-3 hour weekly lab. PREREQ: CHE201-AP. See College Credit Hours Agreements at end of the course descriptions.*

CHE300-H (above AP) **Introduction to Organic and Biochemistry** (FALL and/or SPRING Semester depending on interest– 0.5 unit)
This is a one-semester course and will provide an introduction to the fundamental concepts of organic chemistry and biochemistry. Students will explore the name, structure and properties of certain classes of organic compounds. Also to be considered are some important biological processes related to enzymes, bioenergetics, intermediary metabolism, body fluids, and nutrition. Includes a 2-3 hour weekly lab. *PREREQ: CHE100-H with permission of instructor, AP Chemistry, or permission by instructor*

CHE304-H (above AP) **Introduction to Analytical Chemistry** (FALL Semester – 0.5 unit)
This course will expose students to selected topics in both quantitative and instrumental analysis. The quantitative portion of the course will focus on advanced methods of volumetric analysis as well as statistics commonly used to properly analyze data. The instrumental portion of the course will focus on the theory and implementation of instruments that find widespread use in chemistry. Experiments will allow students to gain experience using various equipment that will likely be found in any standard analytical chemistry laboratory. *Includes a 2-3 hour weekly lab. PREREQ: Completion of AP Chemistry.*

CHE306-H (above AP) **Computational Chemistry** (SPRING Semester – 0.5 unit)
This course will act as an introduction to computational modeling of chemical and biological molecules. Using peer reviewed open-source software, we will learn how to calculate physical and chemical properties of molecules and how to simulate the motion of molecular systems. Applications to fundamental chemistry, biochemistry, medicinal chemistry, and bioengineering will be explored. While the underlying theory of modeling will be discussed in depth, we will be using existing software tools, not building them, so no computer programming knowledge is necessary. This is a hands-on course that will result in the student producing, under the guidance of the instructor, a project that demonstrates their understanding of modeling theory through the application of modeling tools to a real-world research problem. *Includes a 2-3 hour weekly lab. PREREQ: Completion of AP Chemistry and MAT201-AP or COREQ MAT203.*

CHE308-H (above AP) **Introduction to Inorganic Chemistry** (SPRING Semester – 0.5 unit)
This course will expose students to selected subjects in inorganic chemistry. Topics to be explored will include metal bonding, coordination chemistry, group theory, and organometallic chemistry with a focus on transition metals. Laboratory exercises will cover different classes of qualitative analysis as well as synthesis and characterization of transition metal complexes. Includes a 2-3 hour weekly lab.
PREREQ: *Completion of AP Chemistry*.

Chinese

CHI101-E (Dual Credit) 3 hours of college credit **Introduction to Chinese I** (FALL Semester - 0.5 unit)
This is the first half introductory course to Mandarin Chinese. It provides an introduction to the fundamentals of the Mandarin Chinese language. It emphasizes pronunciation, basic everyday conversational proficiency, principles of character formation, vocabulary and elements of grammar needed to develop communicative competence in Chinese at a basic level. In addition, it aids the students in understanding the connection between Chinese language and culture; help the students develop survival skills in an authentic Chinese setting. Prerequisite: None.

CHI102-E (Dual Credit) 3 hours of college credit **Introduction to Chinese II** (SPRING Semester – 0.5 unit)
This is the second half introductory course to Mandarin Chinese. It provides an introduction to the fundamentals of the Mandarin Chinese language. It emphasizes pronunciation, basic everyday conversational proficiency, principles of character formation, vocabulary and elements of grammar needed to develop communicative competence in Chinese at a basic level. In addition, it aids the students in understanding the connection between Chinese language and culture; help the students develop survival skills in an authentic Chinese setting.
PREREQ: CHI101 or previous Chinese credits.

CHI201-E (Dual Credit) 3 hours of college credit **Intermediate Chinese III** (FALL Semester - 0.5 unit)
This is the first half intermediate level course in Mandarin Chinese. As the continuation of Elementary college credit Chinese, this course focuses on reinforcing four language skills: speaking, listening, reading and writing to enhance each student's oral and written communication ability in real Chinese settings. Different aspects of Chinese culture are included*.* Prerequisite: CHI 102 or the equivalent.

CHI202-E (Dual Credit) 3 hours of college credit **Intermediate Chinese IV** (Spring Semester - 0.5 unit)
This is the second half intermediate level course in Mandarin Chinese. As the continuation of Elementary Chinese, this course focuses on reinforcing four language skills: speaking, listening, reading and writing to enhance each student's oral and written communication ability in real Chinese settings. Different aspects of Chinese culture are included. *PREREQ: CHIN III or permission of iinstructor.*

Computer Science

Note: Students taking CSC101, CSC110, or ENGIN141 are strongly advised not to take a second computer science course that same semester.

CSC101-AP (AP CS A) **Introduction to Computer Science (AP CS A)** (FALL Semester – 0.5 unit)
General concepts of sequential execution, conditional execution, iterative structures, recursive techniques and algorithm development are introduced in this one-semester course. In addition, general principles of program construction and object-oriented programming, are covered thoroughly. The activities in class include writing algorithms for specific application problems and implementing the code for these projects. The primary focus of outside-of-class work is to write functioning, efficient, well-documented, well-constructed programs. *If no computer science credit was earned prior to enrolling at GSSM and a student enrolls in this course, the student will be required to enroll and earn credit in an additional computer science course in order to meet the state computer science requirement of 1.0 units.*

CSC102-AP (AP CS A) **Advanced Computer Programming** (AP CS A) (SPRING Semester – 0.5 unit)
A review of arrays, classes, and recursion will preface the continuation of the study of computer science in the second semester. The concepts of object oriented programming including class declaration and design, inheritance, interfaces and polymorphism are integral to programming activities in this course. Abstract data types will be introduced and implemented by the study of the List interface and Java Linked Lists. Sorting and searching algorithms will be examined in order to determine efficiency and storage considerations. Students will be assigned exercises including short answer and free response projects similar to those found on the AP CS A exam. *PREREQ: CSC101-AP or permission of instructor. * (Completion of this course earns the final 0.5 credit of the 1.0 credit provided the CSC101 & CSC102 AP course sequence.)*

CSC110 (Dual Credit) 4 hours of college credit **Computer Science I: Python for Scientist** (EITHER Semester – 1.0 unit)
This course introduces Python, a modern, powerful scripting language used throughout the technology industry, especially in film and games. Learn how to use Python from writing utility scripts to developing custom 2D and 3D graphics applications. *This course will satisfy the state requirement of 1.0 units of computer science since it is dual enrolled. This course will meet 4 times a week.*

CSC111 (Dual Credit) 4 hours of college credit **Computer Science II: C++ Applications** (FALL Semester – 1.0 unit)
Students will examine the differences between machine code, assembly language, interpreters, and compilers. The students will have hands-on experience of writing the code to simulate machine code and designing and implementing a compiler for a SIMPLE language based on that machine code. Building this compiler includes the following steps: lexical analysis, syntax analysis, data type checking and building a symbol table, machine code generation. Students in this course will work in teams to develop a timeline and code for their design and testing of the system. Students will learn how to program using other computer languages such as C++, PC Scheme, and Python in order to compare these languages with each other and with our SIMPLE language. *PREREQ: CSC130 or permission of instructor. This course will meet 4 times a week.*

CSC120-H (above AP) **Interactive Visual Programming using Processing** (FALL Semester– 0.5 unit)
Students will explore computer graphics, mathematics, and art using the Processing programming language. Processing is an environment for learning the fundamentals of computer programming within the context of the visual arts. Topics include creation of 2d and 3d images, animations, image processing including mathematical and data visualization, and interaction with external devices. *PREREQ: CSC101-AP, CSC110, ENGIN141 or completion of AP Computer Science A or permission of instructor. COREQ: CSC130 or permission of instructor.*

CSC130-H (above AP) **Data Structures and Algorithms** (EITHER Semester– 0.5 unit)
A second course in computer science in which students are introduced to algorithm design and analysis, big-Oh notation, and algorithm classification by efficiency and correctness. The course covers basic algorithm design, strategies, mathematical analysis, and approaches to problem solving. Topics include algorithms for searching and sorting, graph theory and graph algorithms, and other computational problems. This course is designed for

students who already know a programming language and would like to continue taking advanced electives in computer science. *PREREQ: CSC101 and CSC102, or CSC 110, or as a COREQ: CSC102, or permission of instructor.*

CSC140-H (above AP) **Introduction to Artificial Intelligence** (SPRING Semester – 0.5 unit)
This course focuses on the basic algorithms of Artificial Intelligence. Problem modeling methods include data classification, regression analysis, clustering, and time series analysis. Supervised and unsupervised training as well as stochastic and deterministic training will be employed in projects. Teach paper cups to win a simple game based on Nim. Learn several methods for normalization of data and error calculation. Different methods of training are applied to classic problems such as the traveling salesman problem and the knapsack problem. *PREREQ: CSC130 or permission of instructor.*

CSC160-H (above AP) **Introduction to Computer Networking** (SPRING Semester– 0.5 unit)
This course is a survey of the underpinnings of computer networks. It will cover the basics of network architecture, topology, protocols, and telecommunications. Students will learn how a request on a web browser is packaged and transferred over the Internet to a destination address and how the results of the request are processed and delivered back again. By the end of the course students will have demonstrated a competence in IP addressing, packet tracing, OSI and TCP/IP models, and configuring routers and switches to use networking protocols. The course is a mixture of discussion and hands-on activities.

CSC170-H (above AP) **Introduction to Database Design** (FALL Semester; offered **odd** numbered years – 0.5 unit)
In this course, students will learn to construct database(s) and the techniques necessary to manipulate and maintain the data stored therein. Using readily available DBMS, students will study database architecture, methods of modeling data, schemas, and query languages. By the end of the course students will have demonstrated a competence in writing SQL queries, applying normalization techniques to datasets, database design, manipulating and navigating relational databases, and representing an information system using an entity-relationship diagram (ERD). *COREQ: CSC130 or permission of instructor.*

CSC202-H (above AP) **Game Design, Prototyping, and Production** (SPRING Semester – 0.5 unit)
This course will focus on the rules and methods of game design, which remain fairly constant regardless of the technology used to develop a game. While technology will play a significant role in the course, technological details will not be the focus. Students will study and design games of all sorts: card games, dice games, athletic games, story games, and video games. Students will craft a game, build a video game prototype, and write a game design document detailing the workings of their creation. *COREQ: CSC130 or permission of instructor.*

Engineering

ENGIN102 (Dual Credit) 3 hours of college credit **Engineering Disciplines and Skills** (EITHER Semester – 0.5 Units)
This course provides a solid foundation of skills to solve engineering problems. Students demonstrate problem solving techniques with spreadsheets, dimensions and units, and use modeling techniques and interpret validity of experimental results. Students design projects on multi-discipline teams. The course introduces professional and societal issues appropriate to engineering. Various forms of technical communication are emphasized.

ENGIN141 (Dual Credit) 3 hours of college credit **Computer Programming 1 with MATLAB** (EITHER Semester – 1.0 unit)
Involves programming and problem solving using MATLAB. General concepts of sequential execution, conditional execution, iterative processes, and recursive techniques are introduced in this one-semester course with the objective of solving problems in science and engineering. Matrix manipulation, plotting of functions and data, implementation of algorithms, and creation of user interfaces comprise the curriculum for this course. The activities in class include designing and implementing computerized applications to solve problems from different disciplines. The primary focus of outside-of-class work is to design, develop, and write the commands to find these solutions. *PREREQ: ENGIN102. This course will satisfy the state requirement of 1.0 units of computer science since it is dual enrolled.*

ENGIN205-H **Applications of Engineering Design** (Fall Semester – 0.5 unit)
For students interested in learning more about various engineering disciplines. If you have had the 2 PLTW courses, "Intro to Engineering Design" and "Principles of Engineering," you might consider a more advanced engineering course. Students do projects using 3D design in SolidWorks, electronics and programing of the Arduino, robotics, and engineering design.

ENGIN206-H **Engineering Mechanics: Statics** (SPRING Semester – 0.5 unit)
This course studies the mechanics of static structures. Topics covered in this course include vector force systems, systems in equilibrium, structural analysis of trusses and frames, friction, distributed forces, center of gravity, and moment of inertia. Technical drawing and design skills will be used to build a bridge structure out of bass wood and test its strength. *PREREQ: PHY151-AP, PHY201-AP or permission of instructor. Includes a 2-hour weekly lab. This course may or may not be offered depending on the availability of an instructor.*

ENGIN207-H **Engineering: Electronics** (SPRING Semester – 0.5 unit)
Students are introduced to the principles of analog and digital electronics. In addition to learning about simple analog circuits, the course also covers a variety of topics including Boolean algebra, basic gates, logic circuits, flip-flops, registers, digital circuits, counters, interfacing with analog devices, and programming an FPGA board. *Includes a 2-hour weekly lab*

ENGIN208 (Dual Credit) 3 hours of college credit **Engineering Design and Modeling** (SPRING Semester – 0.5 unit)
Students join the 3D printing revolution in learning how to create their designs in SolidWorks, including sketching, part and assembly creations, and creating drawings with which to communicate their ideas. A final project will include 3D printing their design. This course is dual enrolled.

ENGIN 209-H **Biomedical Engineering (**SPRING Semester – 0.5 unit**)**
This course taught online with periodic live instruction via the GSSM Accelerate Program.
This course introduces students to the different sub-specialties of biomedical engineering (BME) including bioelectricity, biomedical instrumentation, biomaterials, and biomechanics. Through hands-on labs, design projects, problem sets, and research article review, students explore and experience the engineering design process, problem solving and troubleshooting in the field of BME. Some questions that might be addressed are: "how are electrical signals from the heart measured outside the body?", "is there a way to design high heel shoes that don't hurt women's feet?", and "how do engineers design heart valves that only allow blood flow in one direction?".

ENGIN 212-H **Mechanical and Aerospace Engineering (**FALL/SPRING Semester – 0.5 unit**)**
This course taught online with periodic live instruction via the GSSM Accelerate Program.
This course introduces students to the fields of mechanical and aerospace engineering. It integrates engineering design, core math and science concepts needed to solve problems related to aerospace and mechanical engineering as well as other engineering disciplines. The course includes historical context and addresses the following topics: statics, thermodynamics, fluid dynamics, materials, and mechanics of flight. Through the use of hands-on labs, design projects, problem sets, and demonstrations students learn how engineers use mathematics and science to design efficient and beneficial devices such as automobiles, power plants, airplanes, machinery, and heating/cooling equipment. Students have opportunities to experiment, calculate, compute, design, and build as they explore and solve problems.

CSC402-H **Robotics** (FALL Semester – 0.5 unit)
General principles of engineering design including mechanical, electrical, logic and control subsystems of robotics are applied to building robots. Project planning and team cooperation are critical skills that are developed in the course, including creating timelines, determining critical path, communicating with other team members, and presenting ideas and solutions to a customer or sponsor. Project members learn how to employ team talents to maximize productivity and minimize the time necessary to complete the task. Each robot microcomputer system must be programmed to control the robot's movement and sensors. The main objective for the course is to use engineering and management principles to build a robot to accomplish a set of specific tasks. A student can sign up for the course in their junior or senior year. Juniors who take robotics and would like to continue working with the robotics teams are encouraged to do so as a team member, not a class member in their senior year.

English

ENG102-AP (AP Eng Lang) **GSSM Junior English (AP Eng Lang)** (A Full Year Course - 1.0 unit)
Junior English focuses on great works and writers of American, British, and world literature as they reflect the currents of historical and modern thought and culture. Emphasis will be placed on class discussions, dramatic and argumentative presentations, composition techniques, journal writing, and literary analysis. *If prior to attending GSSM, a student has already taken AP English Language and Composition, the student will still enroll in GSSM Junior English. The course listed on the transcript will be GSSM Junior English.*

ENG201-AP (AP Eng Lit) **GSSM Senior English (AP Eng Lit)** (A Full Year Course – 1.0 unit)
Senior English focuses on great works of Western literature, as they exemplify the characteristics of major periods in the development of Western civilization. In addition, students will practice the skills of speaking, listening, reading, and writing to become better readers, writers, and thinkers. The course will include frequent reading responses and journal entries, as well as several major papers. Students will also work in groups to prepare dramatic and informational presentations to the class. *PREREQ: ENG102.*

ENG303-H **Studies in Dramatic Literature** (FALL Semester – 0.5 unit)
Students taking this semester elective learn about drama by presenting a play before an audience. Students collaborate on all aspects of putting on a drama production including acting, rehearsals, stage management, set design, and costuming. A minimum of four students will be required for this course to be offered. Plays performed in the past include *The Importance of Being Earnest*, *A Streetcar Named Desire*, and *The Odd Couple*. *COREQ: ENG102.*

ENG304-H **Introduction to Film** (SPRING Semester, offered **odd** numbered years – 0.5 unit)
This elective is devoted to the understanding and appreciation of the art of film. Students will watch milestones of cinema history, learning to analyze the various language systems involved such as mise en scene, of editing, acting, screenwriting, camera angles, and cinematography, as well as the ideological underpinnings of films. The course is writing intensive and includes a response journal, movie analyses, and reviews. Students will become better observers and writers as they gain cineliteracy. *COREQ: ENG102.*

ENG305-H **Studies in Creative Writing: Fiction** (SPRING Semester – 0.5 unit)
This course will serve as an introduction to the craft of fiction writing in a traditional workshop setting. The aim is to help students hone their fiction reading, writing, and analytical skills by examining the history of the short story, giving special emphasis to contemporary short story writers from around the globe. Through a careful reading of the chosen texts, students will gain a clearer sense of what makes successful stories and use that knowledge to then write their own. Students will be expected to engage in the writing and revision process as well as peer workshops. At semester's end, participants will have an opportunity to share their work in a public reading. *PREREQ: ENG102 or permission of instructor.*

ENG306-H **African American Literature** (FALL Semester – 0.5 unit)
This course will give students a background on the African American experience via an engagement with black American culture, particularly literary culture. After surveying a few crucial figures in the 18th and 19th century tradition, including Olaudah Equiano, Harriet Jacobs, and Charles W. Chesnutt, we will spend most of our time in the 20th century. First, we will read W.E.B. Dubois's The Souls of Black Folk, paying careful attention to his concept of double consciousness and his sociological observations about the black community which remain influential today. From there, we will spend several weeks on the Harlem Renaissance, the American-grown branch of modernism, with studies of writers such as Alain Locke, Langston Hughes, Zora Neale Hurston, Jean Toomer, and Countee Cullen. Finally, the class will examine a few landmark works after the Harlem Renaissance that touch on African American identity and expatriation, including James Baldwin's essays in The Fire Next Time and Chimamanda Adichie's Americanah. P*REREQ: ENG102 or permission of instructor.*

ENG307-H **Studies in Creative Writing: Nonfiction** (FALL Semester – 0.5 unit)
This course will serve as an introduction to the craft of creative nonfiction writing in a traditional workshop setting. The aim is to help students hone their nonfiction reading, writing, and analytical skills by examining the history of the short essay and focusing more specifically on contemporary writers of the bestselling genre of writing being published today. Through a careful reading of the chosen texts, students will gain a clearer sense of what makes successful creative nonfiction and use that knowledge to write their own. Students will be expected to engage in the writing and revision process as well as peer workshops. At semester's end, participants will have an opportunity to share their work in a public reading. P*REREQ: ENG102 or permission of instructor.*

ENG308-H **Introduction to Philosophy** (SPRING Semester – 0.5 unit)
This course provides grounding in the Western philosophical tradition by first investigating its origins and development in the classical world through study of the pre-Socratic natural philosophers, Socrates, Plato, and Aristotle. We then examine enduring topics of philosophical inquiry in epistemology, metaphysics, and ethics. Some questions we consider are: what distinguishes true knowledge from mere opinion? Is absolute knowledge possible? What constitutes reality? Is math *real* in the same way that a tree is real? Do we have free will, or is the course of our lives in some manner already determined? What, exactly, *is* time? Or space? Or matter, for that matter? Is our mind identical to our physical brain? What is consciousness? How should societies be structured, politically, economically, and culturally? And what is it, ultimately, that makes for a good life, a life that's well worth living? Our goal is not only to understand great philosophers' answers to these and other enduring questions, but also to form and articulate our own thoughtful, well-reasoned interventions into these compelling questions about knowledge, existence, and life. *PREREQ: ENG102 or permission of instructor*

ENG309-H **Introduction to Science Fiction: Literature** (SPRING Semester, offered **even** numbered years – 0.5 unit)
In this class, we will examine the history and influence of science fiction, a genre defined by Robert A. Heinlein as "realistic speculation about possible future events." The class will explore the genre foundation works written by H.G. Wells, H. P. Lovecraft, and George Orwell, and then study novels and short stories that depict post- apocalyptic and cyberpunk themes, dystopias, time travel, alternate history, aliens, and others. In the midst of these readings, we will consider how science fiction often reflects the sociological, philosophical, and environmental concerns of the period in which it was written. Students will keep a journal of reading reactions, make class presentations, and write several short essays. *COREQ: ENG102.*

ENG310-H **Gender Studies** (SPRING Semester—0.5 units)
This course examines the central role of language in the social construction of gender. We will consider how a wide range of American thinkers, utilizing diverse media, have attempted to critique and revise conventional notions of femininity and masculinity and, more recently, legitimize nonbinary identities. Throughout, we will ask how these efforts have intersected with other struggles for rights and power within our society. Students will read intensively in

order to prepare for class discussions and writing projects; in addition, they will use digital humanities resources to complete an original archival research project. *PREREQ: ENG102 or permission of instructor.*

ENG312-H **Shakespearean Drama** (FALL Semester – 0.5 unit)
"All the world's a stage": this, one of Shakespeare's most well-known insights, gets to the heart of why Shakespeare matters to us today. His plays offer deep insight into the ways we *act*—in all senses of that word—day in and day out as we navigate life, trying to make sense of the world we inhabit. When we take our seats for a Shakespeare play, we thrill to watch witches, fairies, ghosts, and gods mix it up with kings, fools, warriors, lovers, and scoundrels in some of the most entertaining, funny, tragic, and moving plays ever written. This course helps us experience the joy and wisdom these plays have to offer by exploring several of Shakespeare's most enduring plays in depth. We will also study the historical, cultural, and political context of the Elizabethan theater, watch traditional and contemporary film and stage productions (including, when possible, field trips to live productions), and produce our own dramatic interpretations of key scenes. Students will come away from the course with a deep understanding of several of Shakespeare's richest and most well-loved plays and an appreciation for his enduring legacy. *COREQ: ENG102*. *A minimum of four students will be required for this course to be offered.*

French

FRE101-H **French I** (A Full Year Course – 1.0 unit)
In this course, we cover the French alphabet, numbers, and phonetic system before covering the present tense of most verb types and touching briefly on the present perfect tense. In addition to learning basic grammar and vocabulary, we explore French culture through texts and videos about music, travel, fashion, food, sports, etc. as well as engaging in some discussion of Francophone societies outside France. We spend the majority of our time in class practicing our spoken French. By the end of the year, students should achieve a communicative proficiency in written and spoken French equivalent to the Novice Mid or Novice High level as described by the American Council on the Teaching of Foreign Languages (ACTFL).

FRE201-H **French II** (A Full Year Course – 1.0 unit)
In this course, we quickly review the grammar of the present indicative before covering the present perfect, imperfect, and pluperfect tenses (also of the indicative mood) and touching briefly on the subjunctive mood. In addition to learning basic grammar and vocabulary, we explore French culture through texts and videos about music, travel, fashion, food, sports, etc. as well as engaging in some discussion of Francophone societies outside France. We spend the majority of our time in class practicing our spoken French. By the end of the year, students should achieve a communicative proficiency in written and spoken French equivalent to the Intermediate Low or Intermediate Mid level as described by the American Council on the Teaching of Foreign Languages (ACTFL). *PREREQ: FRE101 or permission of instructor.*

FRE301-H **French III** (A Full Year Course – 1.0 unit)
In this course, we quickly review the grammar of the present indicative, present perfect, and imperfect tenses before studying the pluperfect and future tenses (also of the indicative mood) as well as the present subjunctive and conditional moods. In addition to learning grammar and mid-level vocabulary, we explore Francophone cultures in Europe, North America, Africa, and the Pacific through texts and videos about music, travel, fashion, food, sports, etc. We spend the majority of our time in class practicing our spoken French. By the end of the year, students should achieve a communicative proficiency in written and spoken French equivalent to the Intermediate High or Advanced Low level as described by the American Council on the Teaching of Foreign Languages (ACTFL). *PREREQ: FRE201 or permission of instructor.*

FRE401-H **French IV** (A Full Year Course – 1.0 unit)
In this course, we quickly review the grammar of the major tenses and moods of the French language before spending the rest of the class adding to vocabulary and improving paragraph-length communication skills. In addition to learning grammar and mid-level and advanced vocabulary, we explore Francophone cultures in Europe, North America, Africa, and the Pacific through texts and videos about music, travel, fashion, food, sports, etc. We spend the majority of our time in class practicing our spoken French. All texts and language use are in French, except when comparisons between English and French are studied; and analysis, synthesis, and evaluation are stressed. Advanced modes of communication (interpersonal, interpretive and presentational) are used in accordance with state and national standards. Clear effective communication within the language is expected from the students. By the end of the year, students should achieve a communicative proficiency in written and spoken French equivalent to the Advanced Low or Advanced Mid level as described by the American Council on the Teaching of Foreign Languages (ACTFL). *PREREQ: FRE301 or permission of instructor.*

FRE601-AP **French VI (AP French)** (A Full Year Course – 1.0 unit each)
(AP French) An advanced, intensive course will be agreed upon by the students and the instructor. Weekly and/or twice weekly meetings will occur but work assigned and time in class will equal that of three meetings a week. Intense practice for the French Language Advanced Placement test (French **language** only) will be the major emphasis for second semester. Requirements from College Board for AP Certification have been met by the instructor and the class will follow those guidelines. All texts and language use are in French; and analysis, synthesis, and evaluation are stressed. Advanced modes of communication (interpersonal, interpretive and presentational) are used in accordance with state and national standards. Clear effective advanced-level communication within the language is expected from the students. Students are encouraged to use French outside of the classroom and native speakers are occasionally invited to class or called by telephone or interactive internet to communicate with students. Outside interactive Internet activities in the target language are encouraged. Assessments of students use the best of traditional methods and the best of recent standards-based assessment approaches in an effort to produce an advanced-level speaker able to use the language in real-world performance tasks. Students in the class will take the French AP Language test given by the College Board. *PREREQ: FRE401 or permission of instructor.*

General Science

Note: These courses do not count towards the GSSM's Lab Science Graduation Requirements.

SCI301-AP (AP Env Sci) **Environmental Science (AP Env Sci)** (FALL Semester – 0.5 unit)
This course will provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, and to examine alternative solutions for resolving or preventing them. Topics from geology, biology, environmental studies, chemistry, and geography will be integrated into this course. Extra readings may be assigned if deficiencies in background knowledge emerge. Students may choose to take the AP environmental science exam. *Includes a 2-3 hour weekly lab. PREREQ: One unit each of any high school biology and chemistry courses. Class limited to 13 students. Seniors given first priority. Does not count towards GSSM's lab science graduation requirement.*

INDS-1 **Your Cosmic Context Independent Study** (FALL Semester – 0.5 unit)
An introduction to cosmology through the study of the nature and physical principles of the universe, and presented as a framework to see ourselves within the context of cosmic history. Clues about the cosmos; the fabric of space-time; the Big Bang theory and the expanding, evolving universe; the story of structure; and the emergence of complex life. *Does not count towards GSSM's lab science graduation requirement.*

INDS-2 **Physics in the Arts Independent Study** (FALL Semester – 0.5 unit)
This course studies physical phenomena found in music and the visual arts; also known as the scientific fields of acoustics and optics. Topics covered in this course include light waves, color mixing, lenses, mirrors, photography, sound waves, sound perception, musical scales, and musical instruments. These topics will be further studied through observation and experimentation during the weekly lab. *Includes a 2-hour weekly lab. COREQ: Initial math placement in MAT111-H or above, or permission of instructor. Does not count towards GSSM's lab science graduation requirement.*

PHY210-H **Astronomy** (SPRING Semester – 0.5 unit)
This survey course of historical and modern astronomy includes such topics as planetary astronomy, spectroscopy, and stellar structure and evolution. Students will learn to use the school's telescopes, including an eight inch Schmidt-Cassergrain telescope. *Includes a 2-hour weekly lab. Class limited to 14 students. Seniors given first priority. Does not count towards GSSM's lab science graduation requirement.*

German

Note: These courses are taught online via live instruction through the Governor's School for Arts and Humanities.

GER200-H **Honors German II** (A Full Year course – 1.0 unit)
This course is based on linking language skills of listening, reading, writing, and speaking. It also (offers insights into the) addresses German culture. Since the class is a multi- level class, ranking from German II learners with basic skills to upper level students, various themes and grammatical structures will be (covered) studied in order to ensure that every student can improve his individual level of proficiency. *PREREQ: German I*

GER300-H **Honors German III** (A Full Year course – 1.0 unit)
This course is based on linking language skills of listening, reading, writing, and speaking. It also (offers insights into the) addresses German culture. Since the class is a multi- level class, ranking from German III learners with basic skills to upper level students, various themes and grammatical structures will be (covered) studied in order to ensure that every student can improve his individual level of proficiency. *PREREQ: German II*

Government, Economics, And Finance

HIS201-H **US Government /Economics** (EITHER Semester or during summer or interim – 0.5 unit)
Offered on-campus or online during the fall and spring semesters, depending on instructor availability.
Offered online during the interim term for students taking on-campus courses.
Offered online during the summer for rising seniors.
This one semester course is an overview of the structure of U.S. government and its basic functions. Various theories of government are incorporated into the course curriculum. The primary emphasis of the course is a study of public policy at all levels of government, integrating government and fundamental principles in economics. Specific areas of emphasis include taxation, fiscal policy, monetary policy, and business regulation. *This class will meet the state graduation requirement for both government and economics. This course is offered online during the summer and interim semesters.*

HIS202-AP (AP US Gov) **AP US Government (AP US Gov)** (FALL Semester – 0.5 unit)
This course provides students with an analytical perspective on governmental processes and politics in the United States. This course includes both the study of general concepts used to interpret U.S. government and politics and the analysis of specific "real world" examples. The course requires familiarity with the various institutions, groups, beliefs, and ideas that constitute U.S. government and politics. Students will be introduced to a variety of theoretical perspectives and explanations for given behaviors and outcomes relative to public policy. C*OREQ: HIS101 (AP US History). If a student takes this course and either EFI310 (AP Macroeconomics) or EFI320 (AP Microeconomics) the state graduation requirement for government and economics will be satisfied.*

HIS203-AP **AP Comparative Government** (SPRING Semester – 0.5 unit)
Introduces the field of comparative politics, stressing comparative concepts and approaches to the cross-national study of politics and government, with examination of political systems, ranging from democratic to non-democratic. C*OREQ: HIS101 (AP US History). If a student takes this course and either EFI310 (AP Macroeconomics) or EFI320 (AP Microeconomics) the state graduation requirement for government and economics will be satisfied.*

ECON210 (Dual Credit) 3 hours of college credit **Principles of Economics: Macroeconomic Concepts** (SPRING Semester- 1.0 unit)
This course taught online with periodic live instruction.
Macroeconomics gives students a thorough understanding of the principles of economics that apply to an economic system as a whole. Such a course places particular emphasis on the study of national income and price determination, and also develops familiarity with economic performance measures, economic growth, and international economics.

ECON211 (Dual Credit) 3 hours of college credit **Principles of Economics: Microeconomic Concepts** (FALL Semester- 1.0 unit)
This course taught online with periodic live instruction.
Microeconomics gives students a thorough understanding of the principles of economics that apply to the functions of individual decision makers, both consumers and producers, within the economic system. It places primary emphasis on the nature and functions of product markets and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy.

EFI301-H **Technology Ventures** (FALL Semester-0.5 unit)
Introduces the fundamentals of entrepreneurship while focusing on technology startups. Reviews methods to identify potential technology-intensive commercial opportunities, gather resources, and measure and manage rapid growth and risk.

EFI303-H **Quantitative Financial Analysis** (SPRING Semester; Offered **odd** numbered years–0.5 unit)
Examines business finance from the viewpoint of business managers by introducing the use of financial statements and concepts for measuring and planning for profitability and liquidity. The focus is on ratio analysis, time value of money, and risk. Cost of capital and business valuation are discussed. Basic Excel techniques for finance are taught.

EFI330-H **International Economics** (SPRING Semester; Offered **even** numbered years--0.5 unit)
Introduces basic microeconomic models explaining the reasons for and the effects of trade among nations, trade restrictions, and regional trading arrangements. Analyzes current topics in international monetary relations. Discusses how countries use macroeconomic policy to influence performance in the global economy and how non-economic global events affect country performance.

History

HIS101-AP (AP US His) **History of the United States from 1607 to the Present (AP US His)** (A Full Year Course – 1.0 unit)
This full-year advanced placement course traces the major events, trends, and themes of American life from the colonial era to the present. Outside reading assignments, including primary sources, enhance the understanding of America's past while showing its connection to our present time. The fall semester includes a study of the Constitution and the origins and functions of the federal government. *If this course has not already been taken, then it must be taken during the Junior year.*

HIS202-AP (AP US Gov) **AP US Government (AP US Gov)** (FALL Semester – 0.5 unit)
This course provides students with an analytical perspective on governmental processes and politics in the United States. This course includes both the study of general concepts used to interpret U.S. government and politics and the analysis of specific "real world" examples. The course requires familiarity with the various institutions, groups, beliefs, and ideas that constitute U.S. government and politics. Students will be introduced to a variety of theoretical perspectives and explanations for given behaviors and outcomes relative to public policy. C*OREQ: HIS101 (AP US History). If a student takes this course and either EFI310 (AP Macroeconomics) or EFI320 (AP Microeconomics) the state graduation requirement for government and economics will be satisfied.*

HIS203-AP **AP Comparative Government** (SPRING Semester – 0.5 unit)
Introduces the field of comparative politics, stressing comparative concepts and approaches to the cross-national study of politics and government, with examination of political systems, ranging from democratic to non-democratic. C*OREQ: HIS101 (AP US History). If a student takes this course and either EFI310 (AP Macroeconomics) or EFI320 (AP Microeconomics) the state graduation requirement for government and economics will be satisfied.*

HIS303-H **Native American Studies** (FALL Semester; Offered **odd** numbered years – 0.5 unit)
This one-semester elective course studies Native American history and culture through linking the native past with the present. Topics include native spirituality and traditions, environmental perspectives, federal policies, the reservation concept, native adaptation and survival, and current events. Course activities include field trips to federal recognized tribes, native guest speakers, common readings of native authors, and study of primary documents. A final project is required.

HIS304-H **Colonial America** (SPRING Semester; Offered **even** numbered years – 0.5 unit)
This one-semester elective course studies colonial exploration and settlements of European powers and their influence on the social, cultural, economic, and political development of early America. The timeframe extends from European contact to 1763. Course requirements include reading and discussion of primary documents that help explore themes and problems related to the development of the colonial period, and how this development influenced the national period. Students will also engage in activities that develop an understanding and appreciation for lifestyles and customs in early America. A final project is required.

HIS306-H **Ethics, Beauty and the Environment** (FALL Semester; Offered **even** numbered years – 0.5 unit)
This one-semester history course requires no prerequisites and is open to juniors and seniors. The course explores America's connection to the natural world through the study of writing, art, activism, laws, and impacts of exploitation. Readings include the classic works of Aldo Leopold, Edward Abbey, John Muir, John Burroughs, Annie Dillard and others. Our field trips include sea turtle nest inventory on Edisto Island and walks in Congaree National Park. Our focus on current issues point us to future paths of ethical management of natural resources and environmental stewardship.

HIS309-H **The Civil War and Reconstruction** (SPRING Semester; Offered **odd** numbered years - 0.5 unit)
This course studies social, economic, cultural, and political forces that led to the Civil War, and how these forces determined the course and outcome of the war. The course intensively studies the successes and failures of the Reconstruction, and how the legacy of the post-war period still affects America. Themes include military strategies and problems, the African-American experience, the role of women, and the home front. Course requirements include extensive reading and discussion of primary documents that help explore related themes and problems. A term paper is required.

Mathematics

MAT101-H **Essentials for Calculus** (A Full Year Course – 1.0 Unit)
This course meets four days each week and will provide a directed approach to prepare students for calculus. Topics covered will include coordinate geometry, rules of exponents, factoring, logarithmic and exponential functions, and an introduction to trigonometry.

MAT102-H **Foundations 1 for Calculus** (FALL Semester – 0.5 unit)
The first course of a two-semester sequence that meets four days each week and is designed to prepare students for the study of calculus. Topics include linear functions, polynomial functions, rational functions, exponential functions, logarithmic functions, function composition and transformations.

MAT103-H **Foundations 2 Calculus** (SPRING Semester – 0.5 unit)
This is the second course of a two-semester sequence that meets four days each week. Topics include trigonometry, parametric and polar equations, and partial fractions. *PREREQ: MAT102*

MAT111-H **Concepts 1 for Calculus** (FALL Semester – 0.5 unit)
The first course of a two-semester sequence that meets three days each week and is designed to prepare students for the study of calculus. Topics include linear functions, polynomial functions, rational functions, exponential functions, logarithmic functions, function composition and transformations.

MAT112-H **Concepts 2 for Calculus** (SPRING Semester – 0.5 unit)
This is the second course of a two-semester sequence that meets three periods each week. Topics include trigonometry, parametric and polar equations, and partial fractions. *PREREQ: MAT111*

MAT200-H **Calculus with Applications** (A Full Year Course – 1.0 unit)
This is an introductory course in differential and integral calculus, but is not designed to prepare students for either of the AP Calculus exams. The course examines limits including l'Hôpital's Rule, as well as derivatives and their applications during the Fall semester. In the Spring semester Riemann sums, definite and indefinite integrals, the Fundamental Theorem of Calculus, integration by substitution, and applications such as area and volume are covered. *PREREQ: MAT 101, MAT103 or MAT112*

MAT201-AP (AP Calc AB) **Calculus I-Semester 1 (AP Calc AB)** (FALL Semester – 0.5 unit)
Students will be introduced limits and continuity, derivatives, max-min theory, optimization and related rates, the Mean Value Theorem and Rolle's Theorem, l'Hôpital's Rule and antiderivatives. The MAT201/202 sequence prepares students for the AP Calculus AB exam. *PREREQ: MAT 101, MAT103, MAT112 or permission of instructor*

MAT202-AP (AP Calc AB) **Calculus I-Semester 2 (AP Calc AB)** (SPRING Semester – 0.5 unit)
Students will be introduced to Riemann sums, the definite integral, the Fundamental Theorem of Calculus, techniques of integration, numerical methods, direction fields, and separable differential equations. Integral calculus will also focus on the applications of area and volume. The MAT201/202 sequence prepares students for the AP Calculus AB exam. *PREREQ: MAT201*

MAT203-AP (AP Calc BC) **Calculus I and II (AP Calc BC)** (A Full Year Course – 1.0 unit)
The content of this course parallels the three semester sequence of MAT201-AP, MAT202-AP, and MAT303-AP, but at a considerably faster pace, meeting four days each week. Students should have a strong interest in mathematics and have demonstrated proficiency in previous math classes. This course prepares students for the AP Calculus BC exam. *PREREQ: MAT 101, MAT103, MAT112 or permission of instructor*

MAT301-H (above AP) **Linear Algebra** (FALL Semester; Offered **even** numbered years – 0.5 unit)
This course includes solving systems by matrix methods, matrix operations, matrix algebra, determinants, Cramer's rule, vector algebra, the dot and cross products used in projections and geometric applications, lines and planes in 3-space, vector spaces, linear independence, linear transformations, eigenvalues, and eigenvectors. *PREREQ: Completion of MAT202 or MAT203 or permission of instructor*

MAT302-H (above AP) **Abstract Algebra** (SPRING Semester; Offered **odd** numbered years– 0.5 unit)
This is an introductory course to abstract algebra and will cover sets, groups, equivalence relations, rings and fields with an emphasis on group theory. Students will learn the basics of writing a mathematical proof. *PREREQ: Completion of MAT202 or MAT203 or permission of instructor*

MAT303-AP (AP Calc BC) **Calculus II (AP Calc BC)** (FALL Semester – 0.5 unit)
This course covers areas of regions bounded by polar graphs, the calculus of parametric equations, integration by parts, partial fractions, trigonometric substitution, improper integrals, and arc length. Other topics include series and sequences, tests of convergence, absolute and conditional convergence, power series, and the Taylor and Maclaurin series. This course prepares students for the AP Calculus BC exam. *PREREQ: MAT202*

MAT304-AP (AP Stat) **Probability and Statistics (AP Statistics)** (FALL Semester – 0.5 unit)
This is an introductory course in probability and statistics. Topics include exploratory data analysis, regression & correlation, experimental design, probability, and random variables. This is the first course of a two-semester sequence that prepares students for the AP Statistics exam. *COREQ: Must have completed Calculus or be taking Calculus to enroll.*

MAT305-AP (AP Stat) **Applied Statistics (AP Statistics)** (SPRING Semester – 0.5 unit)
This course focuses on inferential statistics. Topics include sampling distributions, confidence intervals and hypothesis testing for both means and proportions involving one-sample and two-sample studies. Other topics include inference on regression and chi-square tests. The MAT304/305 sequence prepares students for the AP Statistics exam. *PREREQ: MAT304*

MAT306-H (above AP) **Multivariable Calculus** (SPRING Semester; Offered **even** numbered years– 0.5 unit)
This course examines the calculus of real functions of two or more variables. Differential calculus topics include continuity, directional derivatives, tangent planes, and max-min theory. Integral calculus topics include double integrals in the Cartesian and polar coordinate systems, surface area, and triple integrals in the Cartesian, cylindrical, and spherical coordinate systems. Topics in curvilinear motion including velocity, acceleration, and curvature are also covered. *PREREQ: MAT203 or MAT303 or permission of instructor.*

MAT307-H (above AP) **Discrete Structures** (FALL Semester; Offered **odd** numbered years – 0.5 unit)
This course is a survey of logic and set theory. Topics include propositional and predicate logic, the algebra of sets including mappings, relations and functions, counting principles and probability, and the introduction of the concept of the mathematical proof including induction. *PREREQ: Completion of MAT202 or MAT203 or permission of instructor.*

MAT310-H (above AP) **Number Theory** (SPRING Semester; Offered **even** numbered years – 0.5 unit)
This course covers fundamental principles of number theory, including primes and composites, divisors and multiples, divisibility, and number bases. Other topics include calculations with modular arithmetic, linear and quadratic congruences, arithmetic involving Legendre symbols, Fermat's little theorem and its generalization by Euler, Pythagorean triples, primitive roots and indices, systems of linear congruences, and the Chinese Remainder Theorem. Applications that will be discussed include public key cryptography and the RSA algorithm. *PREREQ: Completion of MAT202 or MAT203 or permission of instructor.*

MAT312-H (above AP) **Ordinary Differential Equations** (SPRING Semester; Offered **odd** numbered years – 0.5 unit)
This course includes the study of first order differential equations beginning with separable equations and their applications, exact equations with integrating factors, and homogeneous equations. Also investigated are second order linear equations, including homogeneous equations with constant coefficients and non-homogeneous equations solved by using the method of undetermined coefficients, the method of variation of parameters, Laplace transforms, and power series solutions. *PREREQ: Completion of MAT202 or MAT203 or permission of instructor.*

Music

MUS110 **Chamber Orchestra** (EITHER Semester – 0.5 unit)
The Chamber Orchestra course will provide students with the opportunity to commit to performance growth and development on their instruments as ensemble performers. Operating in a focused, high energy learning environment, we will set monthly goals that will encourage positive and consistent motivation. The orchestra will perform for several campus and community events, festivals, and will perform 2-3 concerts per year. A variety of orchestral literature that will be studied and performed include music from the Baroque, Classical, Romantic and Contemporary periods, as well as modern, multi-cultural, and pops compositions. Orchestra members will have the opportunity to participate in the SC Region and All-State orchestras under the sponsorship of Mrs. Averill. Students may also continue private lessons from their private instructors via Zoom or Skype, or may pursue private lessons from local string studios. *PREREQ*: *Students must be able to read music well and must be able to proficiently play an orchestral string instrument, woodwind instrument, brass instrument, or percussion.*

MUS111 **Advanced Chamber Orchestra** (EITHER Semester – 0.5 unit)
The Advanced Chamber Orchestra course will provide students with the opportunity to commit to performance growth and development on their instruments as ensemble performers. Advanced ensemble students will be able to demonstrate mastery in musicianship including, but not limited to: tone quality, intonation, rhythmic accuracy, and sight reading. In addition to playing orchestral literature, emphasis is placed on solo and chamber ensemble performance skills. Operating in a focused, high energy learning environment, we will set monthly goals that will encourage positive and consistent motivation. The orchestra will perform for several campus and community events, festivals, and will perform 2-3 concerts per year. A variety of orchestral literature that will be studied and performed include music from the Baroque, Classical, Romantic and Contemporary periods, as well as modern, multi-cultural, and pops compositions. Orchestra members will have the opportunity to participate in the SC Region and All-State orchestras under the sponsorship of Mrs. Averill. Students may also continue private lessons from their private instructors via Zoom or Skype, or may pursue private lessons from local string studios. *PREREQ*: *MUS110*

MUS120 **Concert Choir** (EITHER Semester – 0.5 unit)
The GSSM Concert Choir is open to all students who have previous experience in choir. Students may take the course during their two years at GSSM or they may choose to take it for one or both semesters. The Concert Choir program offers opportunities for students to grow and develop their vocal skills while studying music of various

cultures, languages, and eclectic literature of western music. Through using different warm-up methods, effective rehearsal strategies, and integrating music theory into sight-singing and ear training, students' musical literacy will greatly improve, resulting to a well-developed choir with a strong characteristic and mature sound. During their membership in the concert choir, students will have several performance opportunities for the school and community. Students will also be eligible to audition for Region and All-State Choir clinics during the spring semester. *PREREQ: The student needs to have a well-trained ear, a strong and confident voice, and proficient music reading skills to be successful in this ensemble.*

MUS121 **Advanced Concert Choir** (EITHER Semester – 0.5 unit)
The Advanced Concert Choir is open to all students who have previous experience in choir. Students may take the course during their two years at GSSM or they may choose to take it for one or both semesters. The program offers opportunities for students to grow and develop their vocal skills while studying music of various cultures, languages, and eclectic literature of western music. Specific advanced fundamentals include, but not limited to: music notation, tone, dynamic variance, vocal production, body alignment, proper breathing, resonance, diction, blend, balance, ear training, musical interpretation and analytical preparation of a piece. During their membership in the concert choir, students will have several performance opportunities for the school and community. Students will also be eligible to audition for Region and All-State Choir clinics. *PREREQ: MUS120*

MUS201-AP **AP Music Theory** (A Full Year Course – 1.0 unit)
This is a yearlong course that covers a broad range of basic to advanced musical concepts. Students will learn and enhance their skills in composition, and will learn how to analyze music using harmonic analysis along with other various concepts of analysis. Aural skills including rhythmic and harmonic dictation and sight-singing will also be covered. This course will give students the opportunity to broaden their skills and understanding of music, and deepen their appreciation for music as an expression and academic. After completing this course, students will also have the knowledge to sharpen their performance skills. *PREREQ: Must be able to read musical notation and must obtain permission from instructor.*

Physics

PHY151-AP (AP Physics I) **AP Physics I – A (AP Physics I first semester)** (FALL Semester – 0.5 unit)
AP Physics 1 is an algebra-based, introductory college-level physics course that explores topics such as Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; electrostatics, introductory, simple circuits, and magnetism. Through inquiry-based learning, students will develop scientific critical thinking and reasoning skills. *Includes a 2-hour weekly lab. COREQ: Initial math placement in MAT111-H or above*. *See College Credit Hours Agreements at the end of the course descriptions.*

PHY152-AP (AP Physics 1) **AP Physics I – B** (**AP Physics I second semester)** (SPRING Semester – 0.5 unit)
This course is a continuation of PHY151. To receive a credit for AP Physics 1, both PHY151 and PHY152 must be taken. *Includes a 2 hour weekly lab. PREREQ: PHY151-AP or PHY201-AP. See College Credit Hours Agreements at the end of the course descriptions.*

PHY201-AP (AP Physics C) **Calculus-Based Physics I (AP Physics C: Mechanics)** (FALL Semester – 0.5 unit)
An extension of the generally accessible topics covered in PHY101-H. Topics will be discussed which require basic integral and differential calculus, such as particle kinematics and dynamics via Newton's laws of motion, including circular motion; work; kinetic energy; potential energy; energy conservation; power; linear momentum, its conservation, and impulse of particles and systems of particles; rotational Newtonian kinematics and dynamics of rigid bodies; angular momentum and its conservation; equilibrium of a rigid body; gravitation; and oscillation. *Includes a 2-3 hour weekly lab. COREQ: MAT201-AP or above. See College Credit Hours Agreements at the end of the course descriptions.*

PHY202-AP (AP Physics C) **Calculus-Based Physics II** (**AP Physics C: Electricity & Magnetism)** (SPRING Semester – 0.5 unit)
Primary topics include electric charge; electric field; Gauss's Law for Electricity; potential; capacitance and dielectrics; conductors and insulators; current; resistance; emf; DC circuits; magnetic field; Gauss's Law for Magnetism; magnetic forces; sources of magnetic field; displacement current and Ampere's Law; electromagnetic induction and Faraday's Law; inductance; and electromagnetism as synthesized in Maxwell's equations. *Includes a 2-3 hour weekly lab. PREREQ: PHY201-AP. See College Credit Hours Agreements at the end of the course descriptions.*

PHY203-H **Fluids, Thermodynamics, and Optics** (SPRING Semester -- 0.5 unit)
This course is a third semester of physics meant to complement the 101/102-H, 151/152-AP, or 201/202-AP classes. Students will study some of the classical physics topics not emphasized in those courses, namely, fluid mechanics, thermodynamics, and optics. Other topics may include high energy physics and cosmology as time permits. This course also includes a weekly laboratory experience. *PREREQ: PHY152-AP or PHY202-AP or completion of AP Physics. Students with only one semester of physics can enroll if approved by instructor.*

PHY204-H **Computational Physics** (FALL Semester – 0.5 unit)
This course is an introduction to computational methods to solve physics problems. Robust numerical methods to estimate derivatives, find roots of polynomials and the Monte Carlo method will be studied in their application to physics problems. Students will study realistic projectile motion, chaos theory, planetary orbits and phase transitions of ferromagnetic materials. The mastery of Newtonian Mechanics, familiarity with the concept and definition of a derivative, and ability to do procedural programming is expected to be successful in this course. *PREREQ: AP Computer Science or CSC102-AP or CSC110, and AP Physics C:E&M or PHY152-AP or PHY 202-AP. COREQ: MAT201-AP or higher. Interested students can also seek permission from instructor. This course may or may not be offered depending on the availability of an instructor.*

PHY301-H (above AP) **Modern Physics** (FALL Semester – 0.5 unit)
This course is a continuation of PHY 151/152 or PHY 201/202. It focuses on the implications and applications of the topics covered in these courses beyond the Newtonian scale and introduces some of the extraordinary developments that irrevocably altered our understanding of physics. Following a historical outline, the topics include special and general relativity, atomic structure, quantum mechanics, and nuclear and particle physics. Although the course is geared to the mathematical ability of the class, some calculus should be expected. *Includes a 2-hour weekly lab. PREREQ: PHY151-AP or PHY202-AP or completion of AP Physics. See College Credit Hours Agreements at end of course descriptions.*

Psychology

PSY301-AP **AP Psychology** (SPRING Semester – 0.5 unit) - This class can be taken as a social studies 0.5 credit or an elective. This class will be a basic introduction to the discipline of psychology in the 19th and 20th centuries. Major figures in the development of theories and the evolving of those theories through the years will be discussed. Some case studies may also be used to more effectively focus on the different directions taken by modern psychology. *Taught in one 3-hour class session each week.*

Spanish

SPA201-H **Spanish II** (A Full Year Course – 1.0 unit)
SPAN II is a fast-paced introductory language course intended for students with little or no knowledge of Spanish. Informed by the ACTFL Proficiency Guidelines, this course uses a communicative methodology in an effort to promote the five 'Cs' of second language acquisition: Communication, Cultures, Connections, Comparisons and Communities. By the end of the academic year, students should have a greater understanding of cultural and historical topics from a variety of countries and regions in the Spanish-speaking world. Students should expect to discuss basic topics and cultural events in the present, past, and future; describe people and places; and talk about daily activities. In addition, through frequent attention to a variety of artistic expressions (music, painting, literature, folklore and performance), students will enhance their knowledge of the Spanish speaking world and increase their ability to formulate coherent and critical thoughts in the target language. *PREREQ: Spanish I or permission of instructor.*

SPA301-H **Spanish III** (A Full Year Course – 1.0 unit)
SPAN III is an interactive, proficiency-oriented and student centered course that builds on the language proficiency and cultural knowledge/awareness acquired in Spanish II. Informed by the ACTFL Proficiency Guidelines, this course uses a communicative methodology in an effort to promote the five 'Cs' of second language acquisition: Comunication, Cultures, Connections, Comparisons and Communities. Students will develop the tools necessary to execute some of the following communicative tasks in the target language: discuss events in the past, present and future; talk about hypothetical and conditional situations; and discuss topics of daily life (current events, the environment, urban life, travel, job market, communications, etc.). In addition, through frequent attention to a variety of artistic expressions (music, painting, literature, film, and performance), students will enhance their knowledge of the Spanish speaking world and increase their ability to formulate coherent and critical thoughts in the target language. *PREREQ: Spanish II or permission of instructor.*

SPA401-H **Spanish IV** (A Full Year Course – 1.0 unit)
SPAN IV is an interactive, proficiency-oriented and student centered course, designed to build on the language proficiency and cultural knowledge/awareness acquired in Spanish III. In this course, students will work on the five skills necessary to develop and deliver effective communication in Spanish at a higher, more sophisticated level of performance. Students will focus on enhancing their ability to execute complex communicative tasks in the target language: discuss events in the past, present and future; talk about hypothetical and conditional situations; and analyze, discuss, and reflect on abstract topics. In addition, through frequent analysis of literary and artistic works intended for native audiences (such as plays, poetry, short stories, films, newspaper articles, podcasts, etc.) students will increase their knowledge of the Spanish speaking world and improve their ability to formulate coherent and critical thoughts about important global issues in the target language. After successful completion of this course, students should be well prepared for AP Spanish at GSSM. *PREREQ: Spanish III or Permission of instructor.*

SPA601-AP (AP Span Lang) **Spanish VI (AP Span Lang)** (A Full Year Course – 1.0 unit)
The goal of this course is to improve written and oral proficiency in the target language through the study, analysis and discussion of a diverse body of authentic contemporary texts selected from throughout the Spanish-speaking world. Primary sources include works of fiction (literature, film, popular sitcoms and music), and nonfiction (newspaper articles, essays and podcasts). The class is divided into six units dealing mostly with cultural identity and contemporary sociopolitical conflicts challenging communities across the globe. All topics discussed in class correlate directly with those evaluated on the AP Spanish Language and Culture Exam. Apart from a very brief, but intense, grammar review at the beginning of each semester, minimal class time will be dedicated to explicit grammar instruction. Students who are in this class are strongly encouraged to take the AP Spanish Language and Culture exam in May. This course is conducted exclusively in Spanish. *PREREQ: Spanish IV or permission of instructor*

SPA703-H (above AP) **Topics in Hispanic Culture and Linguistics** (SPRING Semester - 0.5 unit)
This course studies a topic on Hispanic Culture and/or Linguistics as a tool to improve listening, reading and speaking comprehension skills in Spanish and to promote discussion in the target language. The course could focus on two main areas: Culture and/or Linguistics. The Culture topic would focus on a variety of themes such as, globalization, marginalized communities, national identity, political conflicts in Central and South America, and the role of art in the creation of collective memory. The Linguistics topic may focus on themes central to the study of linguistics such as introductory Spanish linguistics, first and second language acquisition, dialectal variation in Spanish, and the development of Spanish from a historical perspective. This course uses the topic as a tool by which cover a varied selection of cultural objects, genres and/or regional diversity from the Spanish speaking world and therefore expose students to a multiplicity of linguistic registers, colloquial expressions, and accents. In addition to the improvement of language skills, the topics will promote cultural awareness by exposing students to unique and actual cultural objects, historical processes and issues and challenges facing global citizens of today. Class discussions and secondary readings focus on both formal elements of linguistics and culture, as well as their sociopolitical, historical, and cultural contexts. Classroom discussions and written assignments are in the target language (Spanish). *PREREQ: SPA601-AP Spanish or permission of instructor.*

Research and Inquiry

Note: Students are required to take RES401

RES401-H (above AP) **Mentored Summer Research** (SUMMER/FALL – 1.0 unit)
Students will either conduct mentored research in an academic, government, or industry research group under the guidance of a professional, or develop and execute a research and inquiry project under the guidance of an instructor or other facilitating expert. During the Fall semester, students work with GSSM research advisors to complete a research portfolio. Formal oral presentations are given at the GSSM Research Colloquium and at the annual meeting of the S.C. Junior Academy of Science (SCJAS) during the Spring Semester.

RES402-H (above AP) **Scientific Investigation I** (May be taken EITHER semester as offered – 0.5 unit)
Students will develop and execute a research and inquiry project under the guidance of their instructor. Students work with their instructor to develop a hypothesis, design appropriate methods to test this hypothesis, evaluate progress on the research methods selected, and troubleshoot difficulties encountered. Students, with appropriate supervision, will perform independent experiments. The student, with guidance from their instructor, will analyze the data, integrate their findings with the broader field of study, produce a research portfolio of the findings, and publicly present at the GSSM Research Colloquium and at the annual meeting of the S.C. Junior Academy of Science (SCJAS), or similar event as identified by their instructor, as needed. *Includes a 2-hour weekly lab. PREREQ: Completion of application with approval of instructor and Director of Research & Inquiry and specific topic areas may have individual course prerequisites.*

RES403-H (above AP) **Scientific Investigation II** (May be taken EITHER semester as offered – 0.5 unit)
Students continue the research and inquiry project from RES402-H. The student, with guidance from their instructor, will analyze the data, integrate their findings with the broader field of study, produce a research portfolio of the findings, and publicly present at the GSSM Research Colloquium and at the annual meeting of the S.C. Junior Academy of Science (SCJAS), or similar event as identified by their instructor, as needed. *Includes a 2 hour weekly lab. PREREQ: Completion of application with approval of instructor and Director of Research & Inquiry and specific topic areas may have individual course prerequisites.*

RES404-H (above AP) **Scientific Investigation III** (May be taken EITHER semester as offered – 0.5 unit)
Students continue the research and inquiry project from RES403-H. The student, with guidance from their instructor, will analyze the data, integrate their findings with the broader field of study, produce a research portfolio of the findings, and publicly present at the GSSM Research Colloquium and at the annual meeting of the S.C. Junior Academy of Science (SCJAS), or similar event as identified by their instructor, as needed. *Includes a 2-hour*

weekly lab. PREREQ: Completion of application with approval of instructor and Director of Research & Inquiry and specific topic areas may have individual course prerequisites.

Visual Arts

ART110 **Introduction to Ceramics** (FALL/SPRING Semester – 0.5 unit)
This entry-level ceramic course is designed to provide students with the opportunity to explore creative expression through natural clay. Students will work with a professional ceramic artist in a studio setting to gain knowledge in traditional methods and contemporary ceramic techniques. Students will develop personal growth while working with earth, hands and heart to create sculptural and or utilitarian, kiln-fired, forms. Study will include connections to other disciplines: history, culture, science or other student-choice interests. In addition to the hands-on practice, students will enjoy a museum excursion to examine historic clay objects and artifacts. At the culmination of the ceramics course, students will display their finished works in a public art exhibition. *PREREQ: None. Max students: 12.*

ART111 **Advanced Ceramics** (FALL/SPRING Semester – 0.5 unit)
Advanced Ceramics builds on the knowledge gained in Introduction to Ceramics. This course provides deeper exploration into three-dimensional ceramic sculpture and or wheel-thrown, glazed, utilitarian works with an emphasis on the development of personal style and point of view. Working alongside a professional ceramic artist, students will explore ways to connect with the world around them and their imaginations in expressive and meaningful ways. Innovation within technique and materials is supported and encouraged. Throughout the course students will develop an independent studio work practice, participate in critiques, write personal artist statements and create works for portfolio. In addition to the hands-on practice, students will enjoy a museum excursion to examine contemporary ceramic sculpture and historic clay artifacts. At the culmination of the ceramics course, students will display their finished works in a public art exhibition. *Prerequisite: ART 110. Max students: 12.*

ART 120 **2D Art Exploration** (FALL/SPRING Semester – 0.5 unit)
This visual art course rich with student-choice options, will introduce students to a variety of traditional and contemporary methods and materials to gain knowledge and a deeper understanding of two-dimensional art as a means of personal expression. Working alongside a professional artist, students will explore ways to connect with the world around them and their imaginations as they experience: sketching, drawing, painting, mixed-media techniques and processes for creating original art. As part of the course, students will be required to do research on art history, write personal artist statements and participate in group critiques. In addition to the hands-on, creative practice, students will have the opportunity take a day trip to observe important works of art in museums and galleries. At the culmination of the course, students will connect with the community at large as they display their original works of art in a public art exhibition. *PREREQ: None. Max students: 12.*

ART 121 **Advanced 2D Art Exploration** (FALL/SPRING Semester – 0.5 unit)
Advanced 2D Art builds on the prior knowledge gained in 2D Art Exploration. This course provides deeper exploration into two-dimensional studio arts with an emphasis on the development of personal style and point of view. Working alongside a professional artist, students will explore ways to connect with the world around them and their imaginations in expressive and meaningful ways. Experimentation and innovation within technique and materials is supported and encouraged. Throughout the course students will develop an independent studio work practice, participate in critiques, write personal artist statements and create a portfolio of work. In addition to the hands-on, creative practice, students will have the opportunity take a day trip to observe important works of art in museums and galleries. At the culmination of the course, students will connect with the community at large as they display their original works of art in a public art exhibition. *Prerequisite: ART 120*

Junior Seminar Series

Note: Students are automatically registered for these seminars.

LLS101 **Life and Leisure Skills** (FALL and SPRING Semester, Graduation Requirement)
This seminar is designed to provide juniors with the necessary skills for making the transition to residential living and to a school curriculum that is frequently intense. The course formally addresses many of the academic as well as emotional and social demands that are placed on students in their new environment. It provides them with an arena where positive life skills are encouraged and fostered. This seminar meets once a week.

LLS102 **Academic Transition** (FALL Semester, Graduation Requirement)
This seminar is designed to assist students with the academic transition to GSSM, so that you can take full advantage of the resources and opportunities available at this wonderful school. We will work together so that you have the opportunity to develop the skills and mindset necessary to thrive in the fast-paced and challenging GSSM academic environment. While we recognize that you have been selected to attend GSSM because of your academic excellence thus far, experience has taught us that additional support for the entering class is a necessary and welcome addition to students' schedules. This seminar meets once a week.

LLS103 **College Planning Seminar I** (SPRING Semester, Junior Year, Graduation Requirement)
The College Planning Seminar I course is designed to teach students how to navigate both the college search and college application processes. The course will emphasize the importance of self-awareness and reflection in the process. Students will also learn how to identify college/universities that match what they are looking to gain in a collegiate experience. The tools and resources shared in the course will allow students to have a thoughtful and guided college search experience. This seminar meets once a week.

LLS105 **Everyday Survival Skills** (SPRING Semester for four weeks, Junior Year, Graduation Requirement)
Life is a contact event and can be stressful. Having an understanding of that and some basic skills can help you over-come stress and survive contact. While it is our hope that you will never be in danger or need to use these survival skills we want you to have them. This 4-week seminar will provide practical hands-on exercises and online learning. Students will be exposed to a) situational awareness training, b) emergency first aid procedures, c) self-defense strategies and methods, and d) physical and mental stress reduction and personal focus techniques.

LLS106 **Public Speaking** (SPRING Semester for four weeks, Junior Year, Graduation Requirement)
This 4-week seminar will provide a brief introduction to the art and science of public speaking. Students should anticipate a fast-paced, hands-on experiential learning environment as we explore the classical roots of public speaking, the basic elements of a speech, various organizing strategies, managing speech anxiety, effective delivery, and persuasion. We will be crafting a variety of short speeches each day, so students will quickly and continually practice what is learned.

LLS107 **Preparing for Research Experiences** (SPRING Semester for four weeks, Junior Year, Graduation Requirement)
This 4-week seminar series will provide an introduction to skills and concepts central to student research experiences. Students will work with peer-reviewed research papers to learn about scientific process, research narratives, how to read and understand research articles, develop annotated bibliographies, data analysis, basic statistics, and communication.

Senior Seminar Series

Note: Students are automatically registered for this seminar.

LLS104 **College Planning Seminar II** (FALL Semester, Senior Year, Graduation Requirement)
The College Planning Seminar II course continues the college application process for the fall of senior year. Students will confirm their college application list, complete college applications and essays, and submit requests to have official documents sent to colleges. Completion of financial aid forms (FAFSA and CSS Profile) will also be covered. This fall seminar focuses on time management skills, organizational skills, submission of college applications and communication with colleges as an applicant. The seminar meets once a week; students may be excused from attending once their applications have been submitted to colleges.

College Credit Hours

Credit Hours at Coker University, Clemson University, and the University of South Carolina for Coursework taken at the South Carolina Governor's School for Science and Mathematics

GSSM has a Dual Credit Agreement with Coker College. Students receive Coker University credit for certain courses. GSSM also has memorandums of understanding with Clemson University and the University of South Carolina to grant college credit for university approved GSSM courses that are closely aligned with the university's courses. Students must earn at least a B in the GSSM course and a passing grade on the challenge exam which will serve as the final exam for the course in order to receive college credit if admitted to the university. Some courses in the agreement are in the Advanced Placement (AP) program while others are beyond this level. Students may continue to take the AP exams where applicable and are encouraged to do so. The following tables specify the course equivalencies and credits granted by each university. Note that the tables are not the same for each university because the credit is based on matching GSSM courses with equivalent courses at the respective universities.

Dual Credit Agreement with Coker University

Students receive college credit from Coker University for the following GSSM courses:

GSSM Course	Coker University Course	Credit Hours
CHI 101 Introduction to Chinese I	CHI 101	3
CHI 102 Introduction to Chinese II	CHI 102	3
CHI 201 Introduction to Chinese III	CHI 201	3
CHI 202 Introduction to Chinese IV	CHI 202	3
CSC 110 Computer Science I: Python for Scientist	CS 110	4
CSC 111 Computer Science II: C++ Application	CS 111	4
EFI 222 Principles of Economics: Macroeconomics Concepts	BA 222	3
EFI 223 Principles of Economics: Microeconomics Concepts	BA 223	3
ENGIN 102 Engineering Disciplines and Skills	EGR 102	3
ENGIN 141 Computer Applications 1 with MATLAB	EGR 141	3
ENGIN 208 Engineering Design and Modeling	EGR 115	3

Course Equivalencies at Clemson University

For Course Credit for GSSM Graduates who attend Clemson University

Clemson Course	Credits	GSSM Course[1]
Biology		
Principles of Biology I and Lab (BIOL 1100/1101)	5	BIO 201 and BIO 202
Chemistry		
General Chemistry I/II and Labs (CH 1010/1020)	8	CHE 201 and CHE 202
Mathematics		
Calculus of One Variable I (MATH 1060)	4	MAT 201 and MAT 202
Calculus of One Variable I/II (MATH 1060/1080)	8	MAT 203
Calculus of One Variable II (MATH 1080)	4	MAT 303
Elementary Statistical Inference (STAT 2300)	3	MAT 304 and MAT 305
Physics		
General Physics I and Lab (PHYS 2070/2090)	4	PHY 151 and 152
Physics with Calculus I and Lab (PHYS 1220/1240)	4	PHY 201
Physics with Calculus II and Lab (PHYS 2210/2230)	4	PHY 202

[1] Students must earn at least a B in the GSSM course and a passing grade on the challenge exam which will serve as the final exam for the course in order to receive college credit if admitted to the university.

Course Equivalencies at University of South Carolina

For Course Credit for GSSM Graduates who attend University of South Carolina

USC Course	Credits	GSSM Course[1]
Biology		
Biological Principles I (BIOL 101)	4	BIO 202 and BIO 303
Biological Principles II (BIOL 102)	4	BIO 201, BIO 304 and BIO 308
Computer Science		
Algorithmic Design I (CSCE 145)	3	CSC 102
Mathematics		
Calculus I (MATH 141)	4	MAT 201 and MAT 202
Calculus I and II (MATH 141 and 142)	8	MAT 203
Calculus II (MATH 142)	4	MAT 303
Physics & Astronomy		
General Physics I and Lab (PHYS 201)	4	PHY 151
General Physics II and Lab (PHYS 202)	4	PHY 152
Essential Physics I and Lab (PHYS 211)	4	PHY 201
Essential Physics II and Lab (PHYS 212)	4	PHY 202
Statistics		
Elementary Statistics (STAT 201)	3	MAT 304 and MAT 305

[1] Students must earn at least a B in the GSSM course and a passing grade on the challenge exam which will serve as the final exam for the course in order to receive college credit if admitted to the university.